

FORMAL LOGIC

*THE DISCOVERY OF DEDUCTION:
AN INTRODUCTION TO FORMAL LOGIC
SYLLABUS 2022-2023*



ELIGIBLE STUDENTS

Rising **7th** — **12th** graders who have successfully completed Pre-Algebra, are able to type, and have had some experience writing academic papers including the following skills: compare/contrast essays, thesis statement and evidence, and alpha-numeric outlining. ***See the “Prerequisites for *Discovery of Deduction*” section below.** Please note: Students enrolled in this course will complete not only the text but will also complete one 3-5 page end of year project, thus earning this course the distinction of being a writing intensive course. The student completing this course earns 1-high school course credit.

Class Dates:

Class Times:

Office Hours: by request

Instructor: Phaedra Shaltanis

E-mail: pshaltanis.scholeacademy@gmail.com

COURSE MAP

SEMESTER 1

1. Introduction to Formal Logic
2. A Brief History of Logic
3. Formal Logic and the Three Acts of the Mind
4. Propositions and Their Relationship
5. Translating Propositions into Categorical Form
6. Relationships of Opposition
7. Relationships of Equivalences
8. Student Evaluations

SEMESTER 2

1. Categorical Syllogisms
2. The Syllogism Introduced
3. Determining the Validity of Syllogisms
4. Student Evaluations
5. Terms and Definitions
6. Definitions and Disagreements
7. Logical Analysis of *Mere Christianity*
8. Final Project

REQUIRED COURSE TEXTS

1. *The Discovery of Deduction: An Introduction to Formal Logic* (available from Classical Academic Press.)

*Please be sure to get Version 2.1.

2. *Mere Christianity* (CS Lewis) ISBN-10: 0060652926 – or – ISBN-13: 978-0060652920

OPTIONAL COURSE TEXTS

MLA Handbook, 8th Edition

FORMAL LOGIC COURSE DESCRIPTION

The Discovery of Deduction course is designed for junior high and high school students who want to study the art of correct reasoning residing in the principles of formal, or deductive logic. This course on formal logic will take students through a study of the syllogism, which embodies deductive reasoning taking the form of a major premise, minor premise, and conclusion. Students will also study the traditional “square of opposition,” a teaching tool that shows various logical relations contained in various kinds of deductive arguments.

The Discovery of Deduction text is not only clear and incremental, but shows students how deductive logic is applied in various disciplines and in everyday life (from the adventures of Sherlock Holmes to scientific and ethical arguments). At the end of the second semester students will be reading *Mere Christianity*. They will be evaluating the arguments made in the novel, specifically analyzing the text for its informally fallacies, syllogistic arguments, and definitions. As a final project, students will be writing an essay explaining their analysis. This is an ideal course for students wanting to know how reason works and who will enjoy thinking about thinking! Students will highly value logic as they grow to see its need and use in every discipline and subject of study.

STUDENT EXPECTATIONS: PREREQUISITES

The prerequisite requirements for this course are intended to help you determine if the student is developmentally prepared to engage with the more abstract concepts and thinking methods encountered in formal logic. Students wishing to enroll in the Discovery of Deduction course are encouraged to be prepared to reason in the abstract and learn to practice (demonstrate) the new thinking processes presented in the course.

To help students and parents determine a student’s preparedness for some of these nebulous areas, students are required to have completed the courses listed in the following paragraph. It’s important to understand that work completed in the prescribed courses will not be included in the Discovery of Deduction class; rather, the successful completion of these courses does provide an indicator of whether or not a student is prepared to think dialectically (an abstract notion in and of itself).

Students should have completed a course in **informal logic** (the informal fallacies) such as The Art of Argument course provided by Scholé Academy. Students should have also successfully completed **Pre-Algebra**. Additionally, because this Discovery of Deduction course will require written essays (including the final project), students should have some experience in alphanumeric outlining, thesis-based essay writing, basic style and formatting requirements (MLA style preferred) and understanding how to avoid plagiarism. Completing a course in Pre-Algebra helps determine if a student is able to reason in the abstract. This is a rigorous subject, with challenging concepts, moving at a rapid pace. The course focuses less on the content of an argument, and instead places more critical attention on the construction of an argument. In any type of argument there are two areas which much both align to create a sound argument: the argument’s content must have a true truth value; and equally importantly, the structure of the argument must be valid. Content and whether or not the argument is “true” is not the primary focus of analysis during this course.

Discovery of Deduction will focus primarily on analyzing the form/construction of deductive arguments. Students will be taught, and later will need to demonstrate how, to separate concepts of truth from those of validity. In other words, an argument may be determined to be valid, yet entirely untrue — meaning the argument has been constructed without a fallacy, while the content and its truth value may be

false. These are important distinctions a student will need to be prepared to engage with, and if he or she is not prepared to embark on this type of abstract reasoning, the challenge may be great.

Formal Logic is a foundational building block in Classical Education - one of the primary cornerstones of ultimately developing excellence in Rhetoric. As part of that larger picture, then, the ultimate goal for the student will be to apply the foundational elements of logical thinking and structural construction of logical argumentation to assignments throughout their academic careers and in self-expression and argumentation in general. Therefore, some student work and assessments in this course will be completed in the text, using online tools and assignments, through classroom participation and discussion, and through written essays.

STUDENT EXPECTATIONS IN ACTION: EXECUTIVE FUNCTION SKILLS

Students enrolling in Scholé Academy's Logic Program will be expected to show development of **Executive Function Skills** throughout the year. Executive Function Skills speaks to a set of qualities students can develop and hone to better approach the courses, lectures, readings and teachers they will face in their future academic coursework.

An Engaged Student: One who is willing to step into the arena of class discussion, ask questions, supply answers, generate the internal dialogue necessary to determine if what's being discussed is important and necessary to himself.

Note Taking: A student who during and after being engaged with the class has been trained to note important and relevant content in an organized fashion (Cornell Notes would be a great option). His notes would then be consulted, independently, for application in assignments and assessments.

Attention to Detail & Preparedness: These students are ones who consistently adhere to deadlines, submission requirements, adhering to style guides and codes, confirm technology is working prior to the start of class, be responsible to determine how to proceed after an absence, be responsible for consulting his course syllabus and adjusting as the class proceeds, etc.

Employing Critiques: These students are ones who receive feedback to one of their submissions, and then are sure to apply that feedback to future assignments rather than repeating mistakes. These students also glean information from the live class critiques of fellow students and note mistakes to avoid by learning from others.

Initiative/Maturity: This student would hear the teacher comments and be able to assess whether or not the teacher was describing his work, and then take the initiative to schedule office hours with his teacher if necessary.

During online discussions, students will review answers, pose questions, explain and justify their answers and solution. Each week the teacher will lead discussions informed by issues and problems raised by students, as well as issues introduced by the teacher. In this class, students will be expected to listen attentively, participate actively in class discussions and practices. Students are expected to arrive to class on time and with all assigned material completed. The instructor will facilitate learning for the student, but the responsibility for staying up-to-date with classwork and assignments ultimately falls to the student. All assignments will be due in their assignment folder on Schoology prior to the start of class each day. Students turning in late work will earn a 5% penalty for each day the assignment is late. Students may submit type-written work via an upload or a link to an online **Photographs of completed work are difficult to read and will not be accepted.**

STUDENT EVALUATION (GRADING)

The instructors will communicate with students regarding assignment feedback and grading through the free online grading system, Schoology. Each teacher will provide students with more detailed information and access to the Discovery of Deduction course page.

Student's grades will be comprised of:

1. Exams: 30% of the grade
2. Class Participation: 30% of the grade
3. Worksheets and Homework Assignments: 15% of the grade.
4. Final Exam (*Mere Christianity* Project): 25% of the grade

*Each quarterly grade will comprise 25% of the overall course grade, not including the final exam project, which will be a stand-alone grade. Weighting the grades earned in this way allows students to more gradually build into good habits and a strong foundation. Students who struggle at the beginning of the year aren't doomed to failure all year, but instead have an opportunity to turn a corner and build upon their mastery of the content of the year goes on.

MASTERY PORTRAIT

Mastery portrait: Students who are prepared to take this class are typically mid to late teens, adolescents approaching young-adulthood. This developmental stage is an interesting one, brimming with lots of new characteristics. It's imperative, then, that this course not only provide the academic components necessary to achieve mastery of the content of the class (knowledge) and skills associated with analytical thought; but to also help engage the student in development of their moral virtues. These three aspects of the course would comprise the "learning target".

- At the completion of this course cum laude students will be able to determine and evaluate and accurately express the structural validity of syllogistic arguments, arguments in everyday language and arguments of their own construction.
- Additionally, they will have attained the skills necessary to not only identify the various parts of the Square of Opposition and patterns of Relationships of Equivalence; but they should also be able to deductively analyze these relationships for further evaluation and determination (exhibiting higherlevel problem-solving thinking which will be a precursor to their study of propositional logic).
- Students will also be guided in development of the virtues of Truth, Goodness and Wisdom. Ideally, students will employ wisdom in governing self — refraining from unnecessary and petty argumentation instead developing discernment in conflict and resolution. By the end of the course students should understand that knowledge, rational argumentation and reason are not complete without a humble, teachable spirit; one that is responsible to appropriately engage skills and tools with generosity and respect for others, even their opponents (and their teacher).

STUDENT ASSESSMENT

While pursuing the Discovery of Deduction through Scholé Academy will be "restful" (it will also be quite rigorous in many places) we also recognize the need to provide grades for students who will be using this course as part of their prepared college transcript. It's a delicate balance to achieve both restful learning and excellent academic performance. Earning a specific grade should not overshadow achievement goals for mastery of this discipline.

Logic, like the studies of Grammar and Rhetoric, is a "core" discipline in Classical Education and learning to own the concepts introduced in this class will be a necessary and significant component of future success in upper-level Classical Education.

In that sense then, attaining a mastery of Logic is its own reward and as the teacher I can assign the following grades to your student's level of achievement: *magna cum laude* (with great praise); *cum*

laude (with praise); *satis* (sufficient, satisfactory) and *non satis* (not sufficient). Ideally, every average student working diligently should do praiseworthy work (*cum laude*). Those who excel beyond this expectation will be the *magna cum laude* students. Students who do adequate but not praiseworthy work be designated *satis*. *Non satis* means lacking sufficiency or adequacy.

Inasmuch as you might be fully on board with this grading method in theory, there will undoubtedly be the need to complete a college transcript with either a numeric or traditional letter grade. Traditional percentage grades will be provided and will be readily accessed on the Discovery of Deduction Schoology page. Additionally, the instructors will provide a grade report and mastery narrative at the end of the academic year.

ACADEMIC DISHONESTY

Students will often take assessment tests and/or quizzes privately at home. Students are on their honor to abide by [Scholé Academy's Learning Philosophy](#) which assumes the personal cultivation of Student-Virtues described in the Student-Parent Handbook.

Additionally, plagiarism is a serious and punishable offense. Proper citation of all sources is essential to the academic endeavor. Remember to cite any source if the information is not common knowledge or is an opinion obtained through any source. A plagiarized assignment will result in a failing grade. Students should consult their chosen style manual (see Student Expectations above) for specific direction on obtaining, quoting and paraphrasing sources.

THE VIRTUAL CLASSROOM

We will be using the free online “virtual classroom” software provided by Zoom, one of the leading companies that provides such software. The virtual classroom will provide students with interactive audio, text chat and an interactive whiteboard in which texts, diagrams, video and other media can be displayed and analyzed. We will provide students with a link (via email) that will enable students to join the virtual classroom.

Specific information regarding the technology used by Scholé Academy (including required technology) can be found by visiting the [Technology in the Classroom](#) section of the Student Parent Handbook.

Students will submit documents by scanning and uploading them to their personal computer, then attaching those files as .pdfs to an email. They will submit their work to the *American Literature* Schoology assignment page (access granted after enrollment is secured).

ABOUT THE INSTRUCTOR

Phaedra Shaltanis has taught in Christian classical schools for over 25 years and has educated her four children in the classical tradition. Her greatest joy has been raising children in the love of Christ, and she wishes to help other families accomplish their educational goals. Her involvement with Scholé Academy includes teaching American Literature, British Literature, Western History, Rhetoric I, Formal Logic and Well-Ordered Language Levels 1 and 2. In her Dallas community, she currently directs a high school tutorial program, trains and mentors teachers, conducts seminars on classical education, and provides fine art instruction at a classical high school. She believes students learn best through repetition, conversation, and application, and she supports the classical model wholeheartedly.